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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------|-------------------------------|------------------------|
| 10/699,446 | 10/31/2003 | Jitendra Balakrishnan | SP03-131 | 2845 |
| 7590 Kevin M. Able Corning Incorporated SP-TI-3-1 Corning, NY 14831 | | | EXAMINER DEGHAN, QUEENIE S | |
| | | | ART UNIT 1791 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/699,446 | BALAKRISHNAN ET AL. | |
| | Examiner | Art Unit | |
| | Queenie Dehghan | 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-9,11-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-9,11-14,17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 16, 2007 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 6-9, 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites depositing from the soot producing burner a first layer of glass soot, wherein the soot producing burner combusts a hydrogen containing fuel. However, the specification indicates different,

wherein the first layer of glass soot is produced by a burner that is combusting a non-hydrogen containing fuel ([0062]).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 6-8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Chang et al (EP1 104 891).

4. Regarding claim 1, Itou discloses a method for making an optical fiber preform comprising providing a relative reciprocating motion between at least one soot producing burner combusting a hydrogen containing fuel and a consolidated glass rod,

depositing from the soot producing burner a first layer on the rod and a first rate and direction, depositing a second layer on the first layer at a second rate slower than the first rate, in the first direction without sintering ([0006], [0007], [0008], [0009], Table 1 &2), as evident by the need to sinter afterwards. However, Itou fails to disclose the thickness of the first layer formed. One of ordinary skill in the art would be able to sum up the desired number of burner passes in order to obtain a first layer with the desired thickness. Blankenship discloses an OVD method wherein the first layer deposited on the cylindrical mandrel has a thickness of 5mm and a second layer is subsequently deposited on top the first layer (col. 4 line 64 to col. 5 line 4) without sintering the first or second layer (col. 5 lines 12-15, 64-68). It would have been obvious to one ordinary skill in the art at the time the invention was made to form a first layer with a desired thickness of 5mm on the mandrel, as suggested by Blankenship, in the process of Itou because such a thickness in order to have a diameter measurement with reasonable precision, which would allow for tighter control of the core diameter and hence minimizing the scattering losses, as taught by Blankenship. Furthermore, Itou also fails to disclose an OH concentration at the glass rod interface. Chang teaches a method for making an optical fiber preform comprising a core rod produced by depositing a first layer of glass soot on a consolidated glass rod, wherein the core rod has a peak OH concentration of less than 0.200ppm by weight ([0008], [0014], [0020], [0021]). Chang provides an example of a preform with a core diameter of 4.5mm and a first layer has diameter of 19mm, or when calculated out, a first layer that is 7.25mm thick ([0034]). Since the core rod of Chang has a first layer larger than 100 μ m thick, then the preform

Art Unit: 1791

of Chang has a peak concentration of OH within 100 μ m of the surface of the glass rod after deposition of the first layer is less than 0.200ppm by weight. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chang where the cladding of an optical fiber preform be applied in two different steps, wherein the first step include the deposition of soot on a glass rod such that the OH concentration is minimized to less than 0.8ppb in the process of Itou and Blankenship in order to minimize optical loss in optical fibers due to water absorption.

5. Regarding claims 6 and 7, Itou also discloses a traverse rate in a second direction opposite the first direction is greater than the first traverse rate in the first direction and a deposition rate of zero during a traverse in the second direction ([0002]).

6. Regarding claim 8, Itou disclose the use of two soot deposition burners (drawings 1& 2).

7. Regarding claim 13, Itou fails to disclose a reciprocating motion comprising attaching a glass rod to movable support and traversing the support relative to the burner. Blankenship disclose a support means (20) for attaching to a mandrel, wherein the support means is traversed relative to the burner (col. 4 lines 60-62, fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the traversing support means of Blankenship in the process of Itou because Blankenship has demonstrated that it is a known means for the depositing soot on a mandrel in vapor deposition processes.

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and

Chang et al (EP1 104 891), as applied to claim 1 above, in further view of Powers (4,726,827). Itou fails to disclose the traversing speed of the burners. Powers teaches a vapor deposition burner traversing at a rate at least about 10cm/s (col. 6 lines 40-44, col. 7 lines 58-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the traversing speeds of the deposition burners, as exemplified by Powers in the process of Itou, Blankenship, and Chang et al in order to obtain the desired thickness of the soot layers.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Chang et al (EP1 104 891), as applied to claim 8 above, in further view of Itoh et al. (2003/0101772). Itou fail to disclose the temperatures of the two burners. Itoh et al. teach a two burners system used where the temperature of a second burner is less than a temperature of a first burner ([0016] [0017], [0028]) used to preheat the surface of a starting material for deposition. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the two different temperatures of the two burners of Itoh et al. in the process of Itou in order to prevent shearing and stripping of cladding layers while sintering.

10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 1 above, in further view of Ooishi et al. (2002,0073737). Itou fails to disclose the diameter of the glass rod. Ooishi et al. teach using a starting rod with a diameter of at least 32mm ([0045], [0061]). It would have

Art Unit: 1791

been obvious to one of ordinary skill in the art at the time the invention was made to utilize the starting rod diameter of Ooishi et al. in the process of Itou in order to obtain the desired outer diameter preform.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Chang et al (EP1 104 891), as applied to claim 1 above, in further view of Fogliani et al. (WO 02/090276) or Schultz (3,826,560). Itou fails to disclose a reciprocating motion comprising attaching a glass rod to movable support and traversing the support relative to the burner. Fogliani et al. teach an embodiment where the core rod is traversed with respect to the burner (page 14 lines 19-22). In order to do so, it would have been obvious to one of ordinary skill in the art to expect a support that holds and moves the rod. Similarly, Schultz discloses traversing a starting rod while a burner deposits soot (col. 4 lines 35-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the step of traversing the starting rod on a movable support of Fogliani et al. or Schultz in the process of Itou as it a known option in vapor deposition, when the burners are held in a fixed position.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162), Chang et al (EP1 104 891), and Fogliani et al. (WO 02/090276) or Schultz (3,826,560), as applied to claim 13 above, in further view of Springate (3,421,560). Blankenship, Fogliani et al. and Schultz teach the traversing of the rod, but fail to disclose a damping force for the movement of the support for the glass rod. However, Springate teach a movable frame

Art Unit: 1791

that traverses in one direction and turns around (figure 2), wherein hydraulic cylinders with pistons are used to dampen the movement of the rolls, in the same manner as a shock absorber (col. 3 lines 9-16), to provide control movement of the rolls. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the damping effects of the Springate in the process of Itou, Blankenship, Chang et al, and Fogliani et al. or Schultz in order to control the movement of the movable support and compensate for wear on the mechanical parts, as taught by Springate.

13. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Itoh et al. (2003/0101772). Itou discloses a method for making an optical fiber preform comprising providing a relative reciprocating motion between at least one soot producing burner and a consolidated glass rod, depositing a first layer on the rod and a first rate and direction, depositing a second layer on the first layer at a second rate slower than the first rate, in the first direction without sintering ([0006], [0007], [0008], [0009], Table 1 &2), as evident by the need to sinter afterwards. However, Itou fails to disclose the temperature of the surface of the glass rod. Itoh et al. teach a method for making an optical fiber preform, where the rod has a surface temperature of 600°C, which does not exceed 640°C ([0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the starting temperature of the glass rod of Itoh et al. promote good adhesion between the soot particles and the rod, as taught by Itoh et al.

Response to Arguments

14. Applicant's arguments with respect to claims 1-3,6-9,11-14 have been considered but are moot in view of the new ground(s) of rejection.

15. Applicant's arguments with respect to claims 17-19 have been fully considered but they are not persuasive.

16. The applicant argues that the process of Itoh fail to suggest a soot surface temperature less than 800°C. The claim recites that a temperature of a surface of the *glass rod* to not exceed 780°C, not a temperature of a surface of a *soot layer*.

17. The applicant also argues that when deposition commences, the temperature of the rod will exceed the applicant's limit, the Examiner agrees that Itoh discloses a soot surface temperature of 800°C and that when deposited on a rod that is preheated to 600°C, the temperature of the glass rod will further increase. However, it is not certain to what temperature the glass rod will increase. It is mere allegation that the temperature will actually exceed the applicant's limit.

18. Furthermore, the applicant argues that it is irrelevant that the rod surface temperature of Itoh at some point is less than the applicant's limit. Claim 1 recites a temperature of a surface of the glass rod, which is broadly and reasonably interpreted to mean a temperature at any given time on any surface point on the glass rod.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is


Art Unit: 1791

(571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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